Supporting European road-mapping activities for the electrification of road transport: CAPIRE and Smart EV-VC

EMMA BRIEC
RENAULT

EGVI
European Green Vehicles Initiative

CONTENTS

EGVI
European Green Vehicles Initiative

EU Policy for Clean Transport

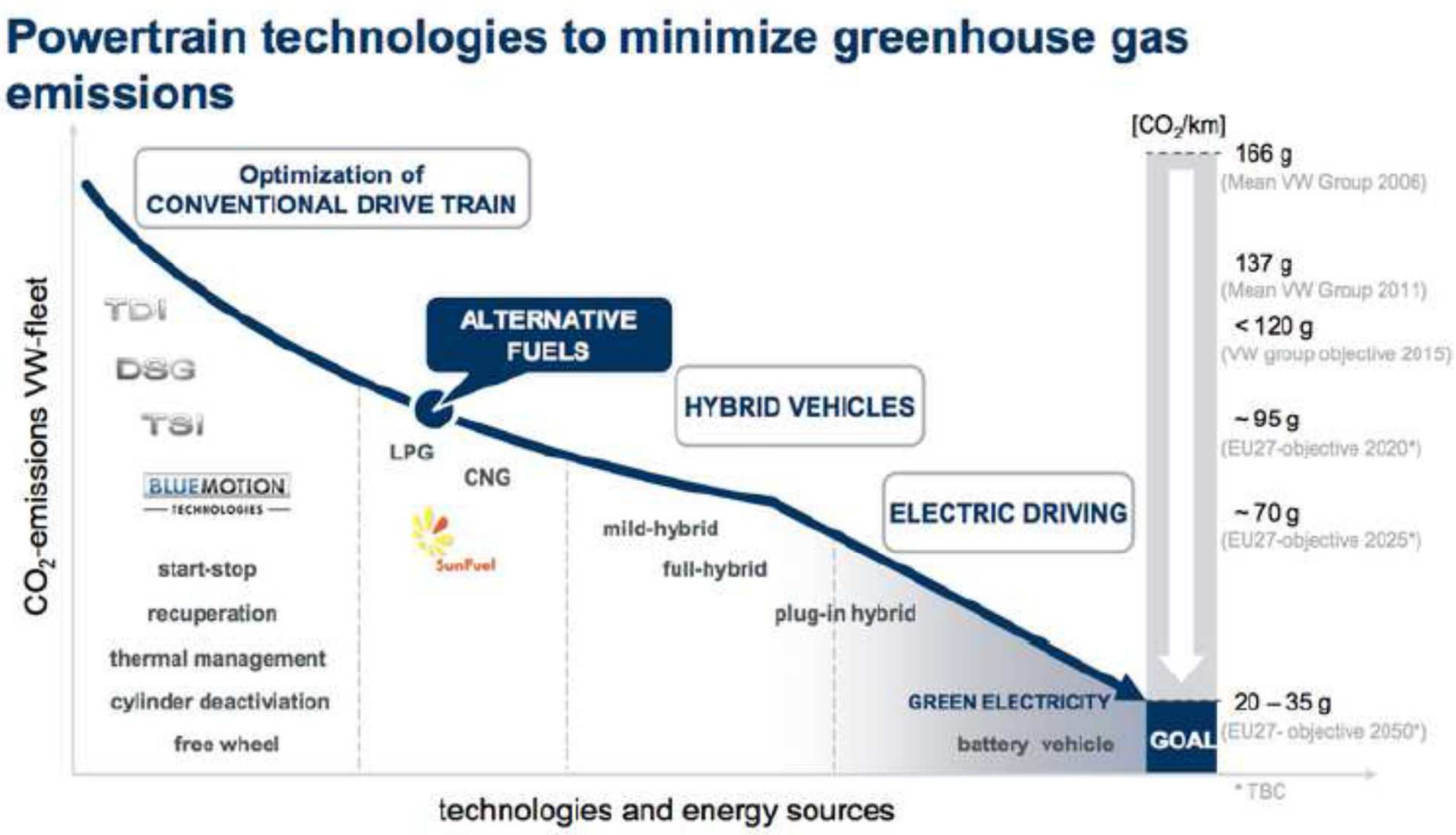
- **Europe 2020 Strategy**
  20% cut of GHG emissions
  20% more renewable energy
  20% less energy consumption
  (in 2020, compared to 1990)

- **Transport 2050 Strategy**
  60% cut of carbon emissions by 2050
  50% less conventionally fuelled cars in cities 2030
  no more conventionally fuelled cars in cities 2050

- **EU Fleet Emission Standards for New Cars**
  130g CO_2/km (2012 – 2015, phase-in)
  95g CO_2/km (2020)

EGVI
European Green Vehicles Initiative

Trends in EU transport CO_2



Green Vehicles Network

European Technology Platforms

All Stakeholders of the Road Transport System

All Stakeholders of the Smart Systems Domain

All Stakeholders of the Smart Grids Field

CAP!RE

SMART EV·VC

Actors of the European Green Cars Initiative

Public Private Partenership

- Strategic Research Agendas
- Long-Term Roadmaps

- Multi-Annual Implementation
- Annual Prioritization

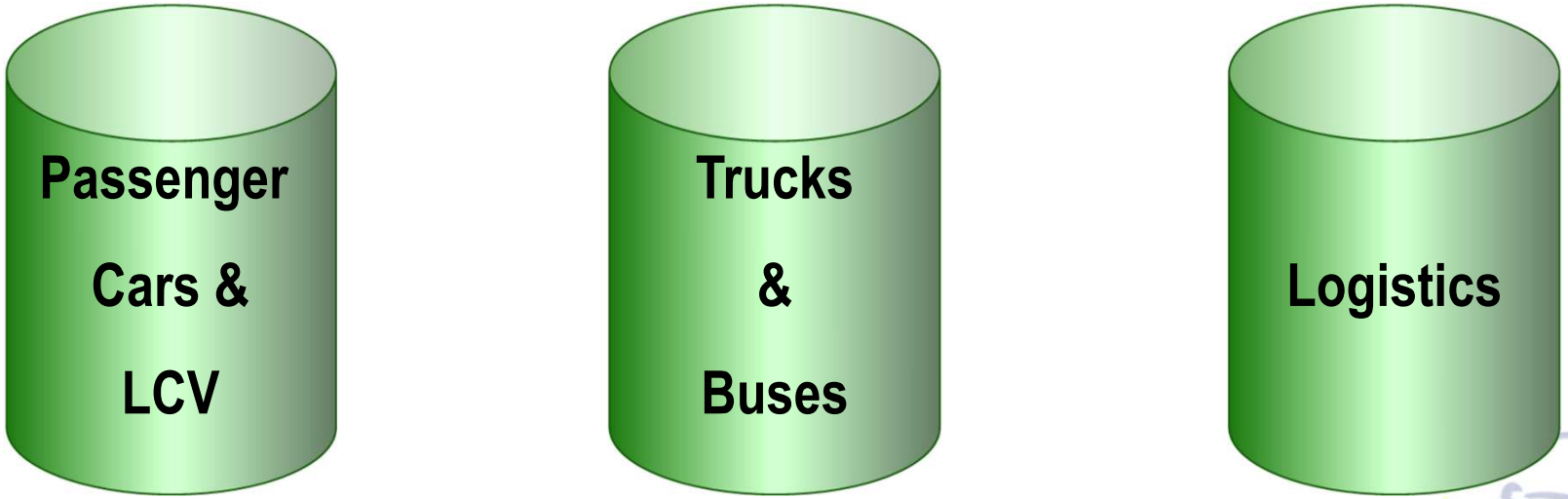
EUROPEAN GREEN CARS INITIATIVE:

PPP Implementation for Road-Transport Electrification

SEVENTH FRAMEWORK PROGRAMME

- sustains and puts into practice the European Green Cars Initiative PPP
- Propose the implementation paths of the PPP EGCI,
- Identify the technology roadblocks and framework needs,
- Describe research priorities within the framework of FP7, FP8 and afterwards,
- Facilitate the dissemination of results of the projects funded under the EGCI

Three technology pillars



- *Fourteen Partners*
- *Duration: 4 Years*
- *Started on December 1st, 2010*
- *Will finish on November 30, 2014*
- *Total Person Month: 132*
- *Total Budget: 2,2 MEuros*
- *EC Funding: 1,7 MEuros*
- *FP7-SUSTAINABLE SURFACE TRANSPORT (SST)-2010-RTD-1*

Objectives of the Project

- Sustainability goals require **paradigm shift** in the concept of the automobile regarding architecture, design, materials, and propulsion technology
- **(F)EVs** provide unique opportunities for reducing energy demand e.g. by smart integration & redesign of architecture
- Europe has to anticipate the changes of the move towards the EV and adapt its **automotive value chain**
- **Smart EV-VC** will
  - define goals in terms of ICT and smart systems related **unique selling points** of the EV
  - support related **European roadmapping activities**
  - strengthen the European EV **value chain** by by making recommendations for harmonized curricula for education and training, initiating of standards, and concepts for shared facilities as well as the inclusion of SMEs.

Consortium:

SMART EV·VC

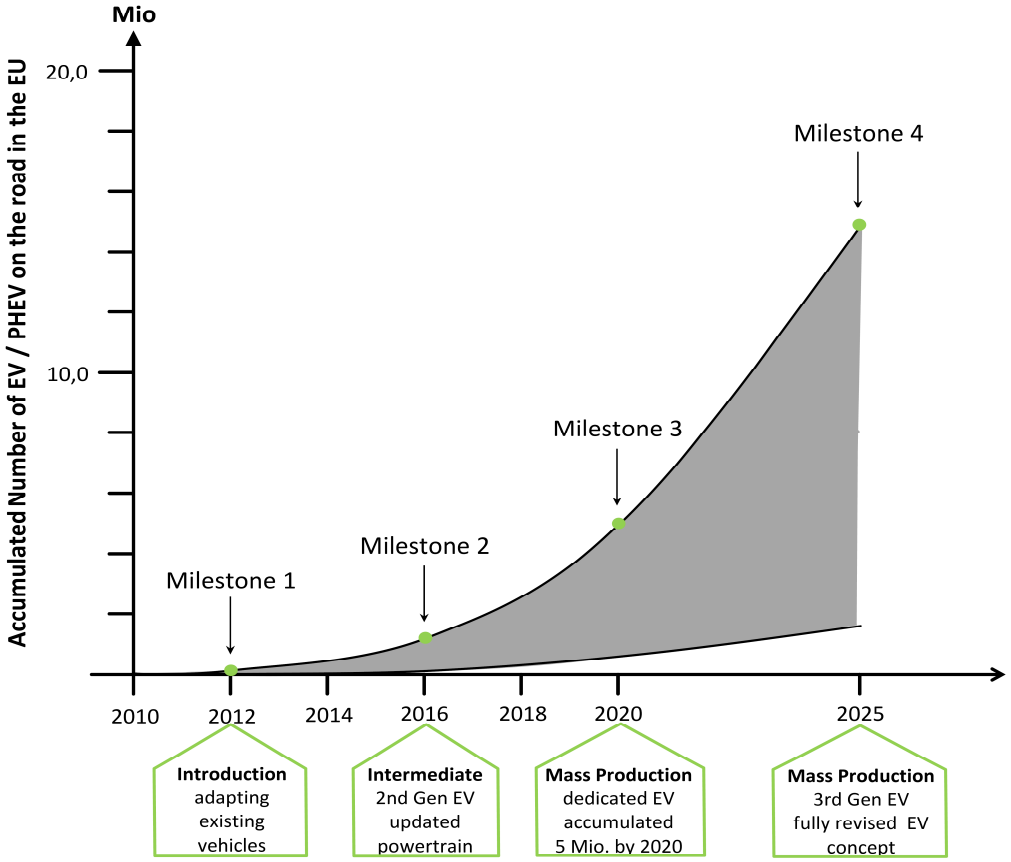
Core Partners:

Associated Partners:

EADS, Valeo, TNO, LMS, Fraunhofer ENAS, Umicore, AVERE, MagnaSteyr, NXP Semiconductor, Ideas &Motion, University of Coventry (also representing the INTRASME project), Innovation Bridge Consulting

Duration:

Electrification Roadmap

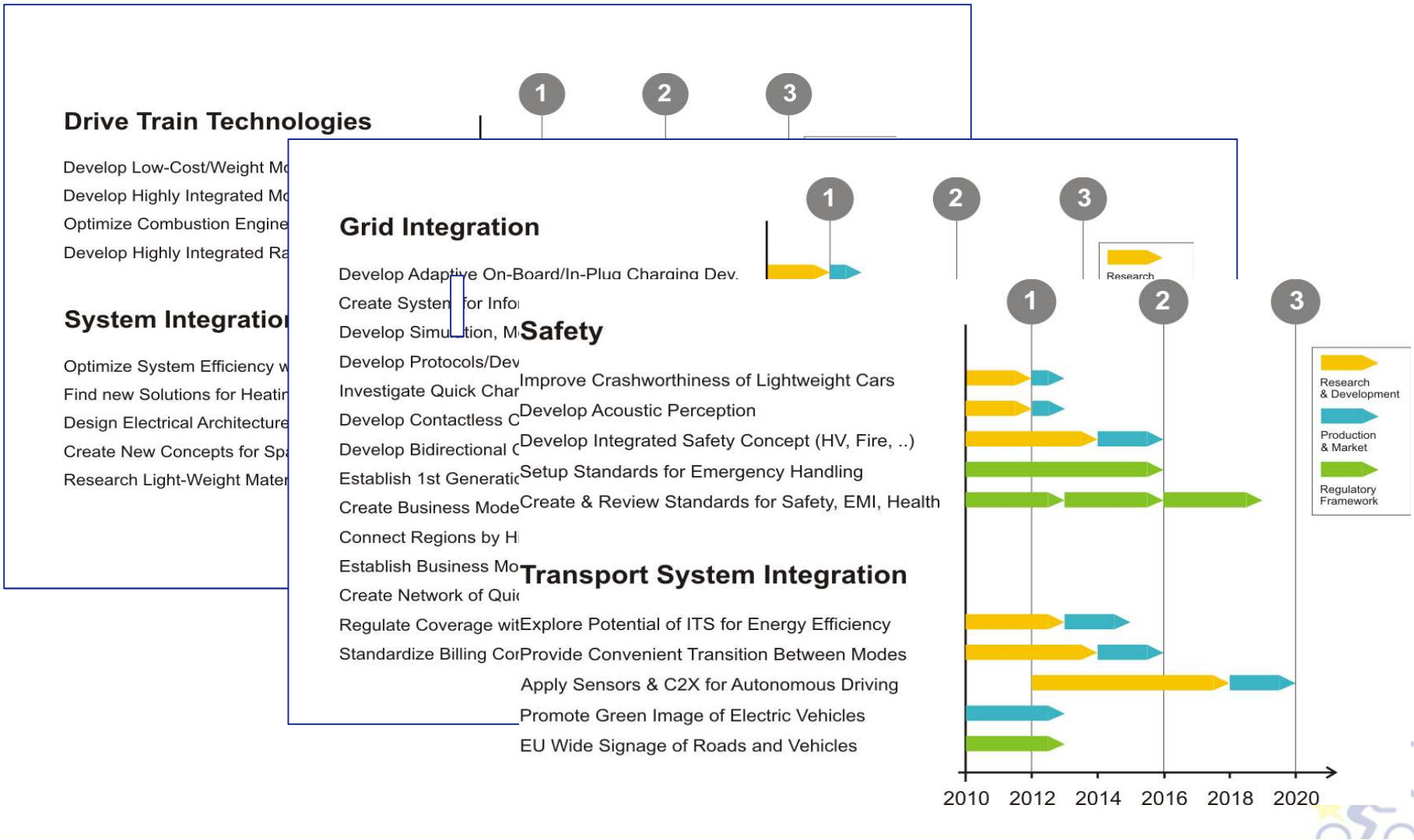


ERTRAC/EPoSS/SmartGrids

Electrification Roadmap

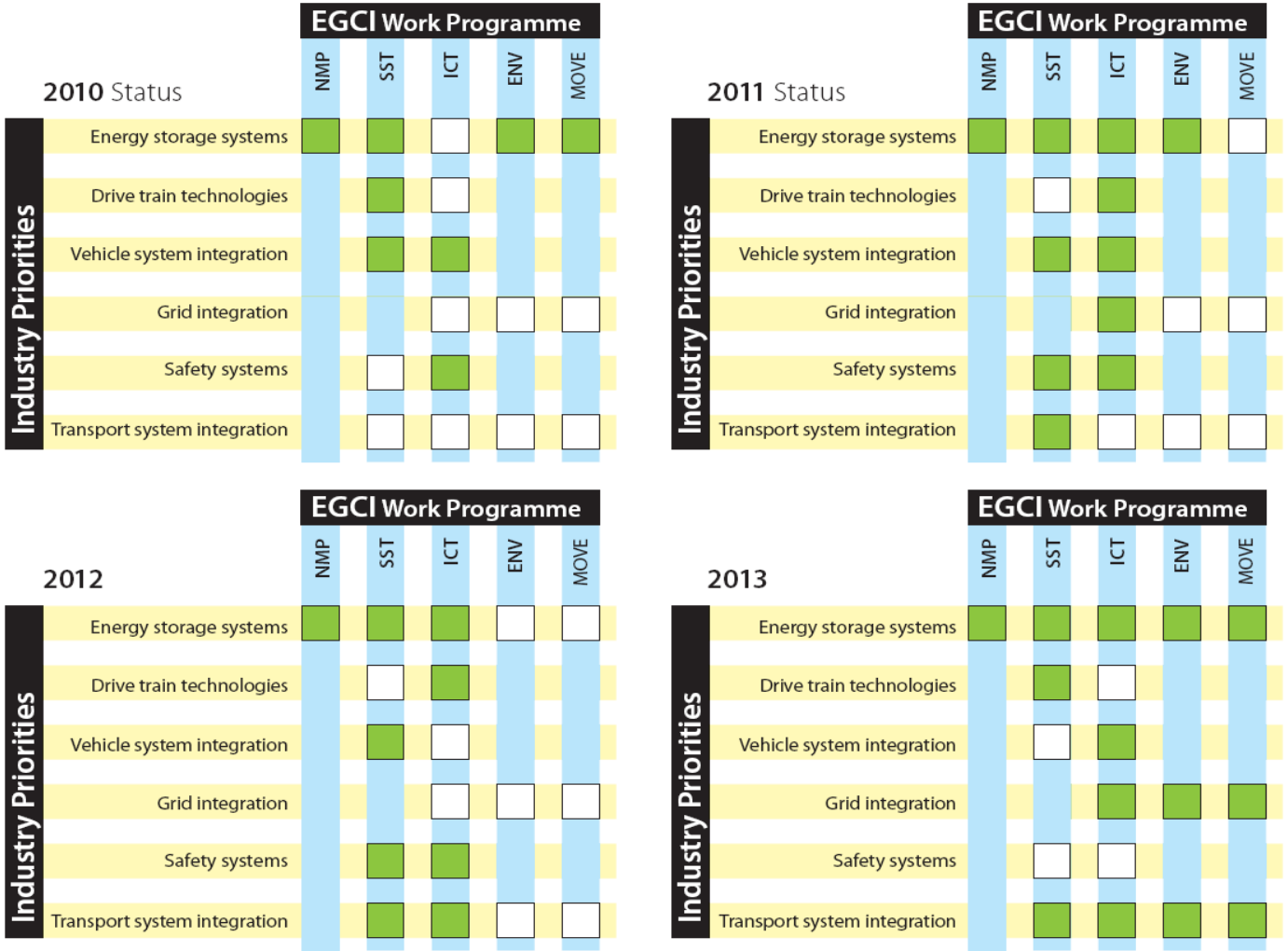
- **Energy Storage Systems**
  (cost, performance, lifetime, safety)
- **Drive Train Technologies**
  (energy recovery, range extenders)
- **System Integration**
  (energy efficient interplay of components)
- **Grid Integration**
  (charging, metering, renewables, V2G)
- **Safety**
  (crashworthiness, HV, emergency)
- **Transport System Integration**
  (road infrastructures, intermodal use)

Technology Roadmaps



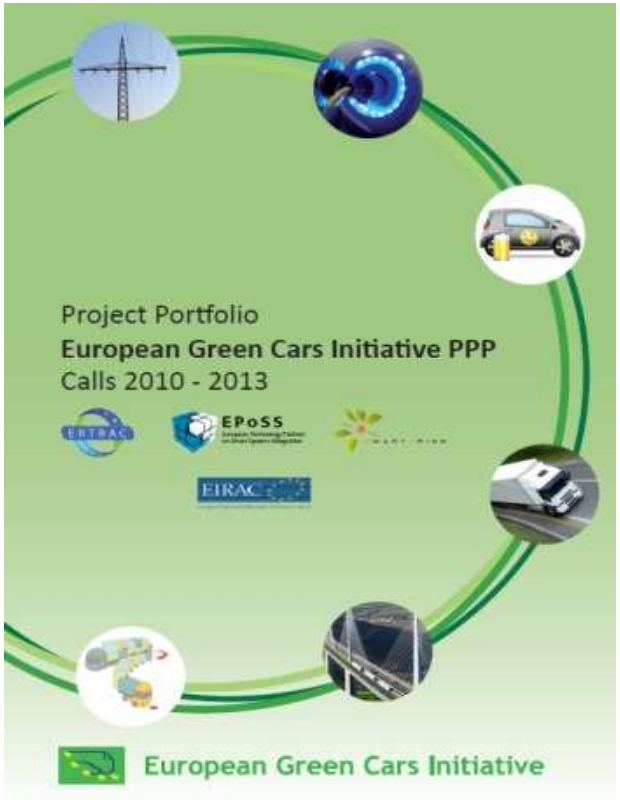
Updated in 2012 , endorsed by ETPs

Call Recommendations



EGCI 2010-2013 Collaborative Projects

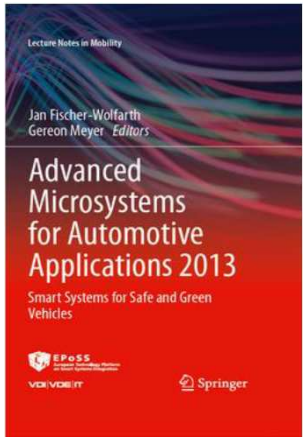
- 177 projects within EGCI and related initiatives as ARTEMIS, ENIAC, CIP
- 99 dealing with electric mobility



Project Portfolio

Project Highlights

- Expert Workshops 2013:
  - USP of the FEV made in Europe
  - EV Batteries: From research towards innovation
  - EV systems architecture and standardization needs
- AMAA conferences 2013/14
- Suppport of the European Green Cars / Green Vehicles Initiative – Electrification Roadmaps, Multiannual Roadmap, Project Portfolio, Draft Work Programmes..
- Standardization Brochure



What is Horizon 2020?

- Commission proposal is about €80 billion research and innovation funding programme (**2014-2020**)
- A core part of Europe 2020, Innovation Union & European Research Area:
  - Responding to the **economic crisis** to invest in **future jobs and growth**
  - Addressing **people's concerns** about their

EGVI PPP Framework
Horizon 2020 (2014-2020)

- EU Framework Programme for Research and Innovation, **financial instrument** for funding research in Europe, with dedicated budget of €70.2 billion.
- Industry, Member States and European Commission to engage in **joint funding programmes** within the EGVI PPP.
- **Initial budget proposal** of €3 billion over the seven-year period, of which €1.5 billion EU funding.
- Three rounds of **biennial calls for proposals** expected to be launched within the EGVI PPP in the period 2014-2020.

Governance: Representing the Private Side

The European Green Vehicles Initiative Association

Today, EGVIA is composed of 64 members:

- 13 automotive OEMs
- 15 automotive suppliers
- 4 from smart systems industry
- 1 from smart grid industry
- 13 research organisations
- 11 universities
- 7 associate members

Suggested topics for first EGVI calls

➢ Challenges for 2014

- Next generation Li-Ion / post Li-Ion batteries
- Energy and thermal management of electric vehicles
- Gas engines for light-duty vehicles
- Hybrid components and architectures for light/heavy-duty vehicles
- Electric two-wheelers and new vehicle concepts
- Innovative natural gas engines for heavy-duty vehicles

➢ Challenges for 2015

- Battery Management System
- Power electronics
- ICT and Grid integration
- Driveline control for heavy-duty vehicles